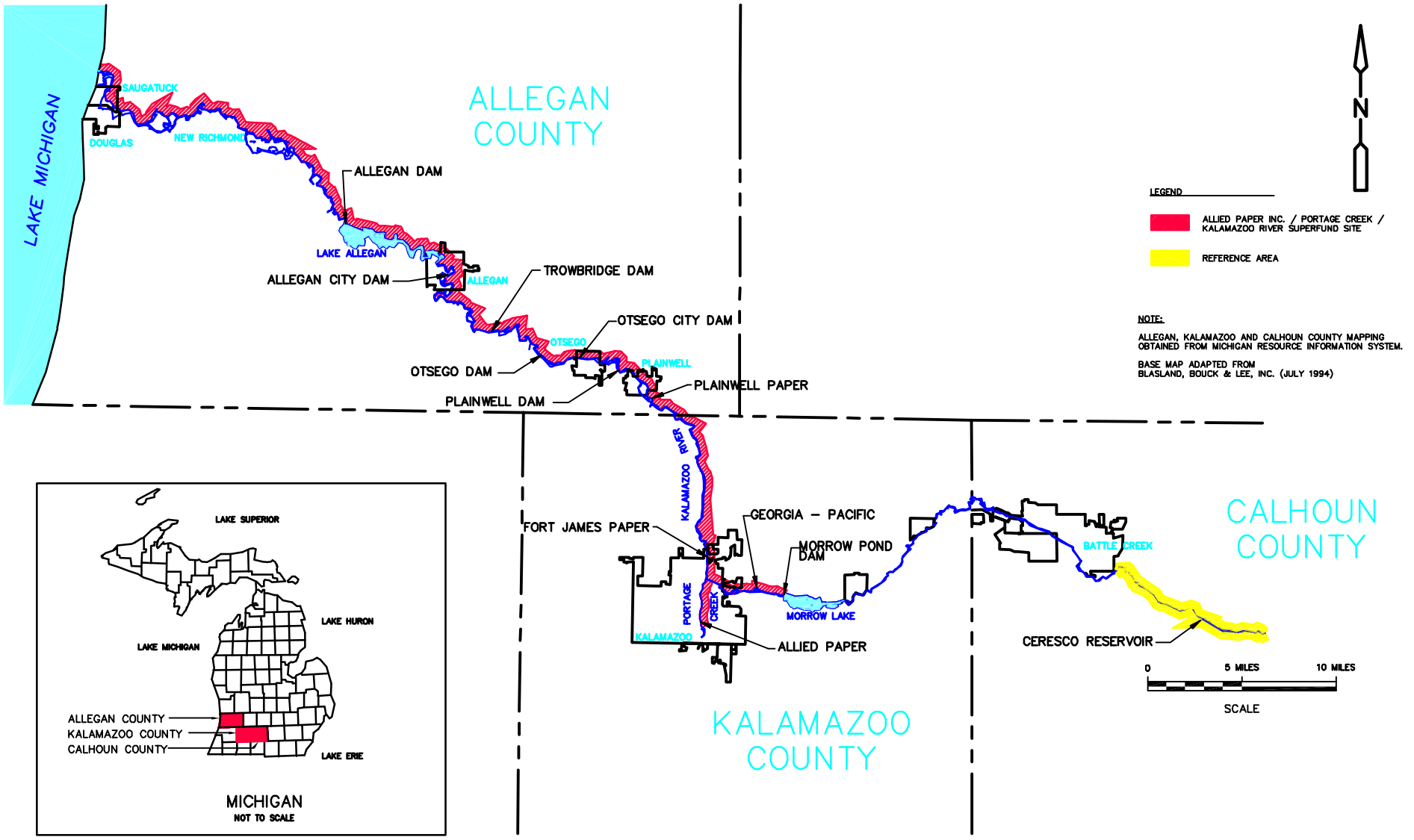
Section 1
Introduction

This document presents the human health risk assessment (HHRA) for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (API/PC/KR) in Southwestern Michigan. Figure 1-1 presents the extent of the site study area. This assessment is based on concentrations of polychlorinated biphenyls (PCBs) detected in media at the site, exposure assumptions for people living on and near the site, and toxicity information for PCBs, which together are used to characterize risks to human receptors. Risks are estimated based on existing (baseline) conditions, that is, in the absence of any remedial action or institutional controls. This information is intended for use by risk managers in making risk management decisions to protect human receptors.

1.1 Report Objectives

The objective of the HHRA is to assess potential current and foreseeable future risks associated with PCB exposure to people who may recreate on and near the river and along the floodplain, and who may live near the river and along the floodplain. Specifically, this HHRA:

- Defines the sources of contamination
- Identifies human receptors of concern
- Evaluates all exposure pathways and eliminate those not deemed significant
- Quantitatively evaluates significant exposure pathways
- Determines the extent and likelihood of actual or potential impacts
- Describes the uncertainty associated with the risk and hazard estimates
- Develops risk-based fish concentrations protective of human health
- Develops risk-based sediment and floodplain soil concentrations protective of human health



ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE

KALAMAZOO RIVER HUMAN HEALTH RISK ASSESSMENT
STUDY AREA

CDM
environmental engineers, scientists, planners, & management consultants

Figure No. 1–1

Exposures to the following media are evaluated: (1) exposed sediments / floodplain soil in former impoundment areas; (2) near and in-stream sediment; (3) surface water; (4) biota, including fish and waterfowl; and (5) air. This HHRA estimates cancer and noncancer risks for those exposure pathways considered potentially significant and for which sufficient data were available to support such calculations. In an effort to focus resources on those pathways with the greatest hazard potential, potentially significant pathways were determined by means of a comparison of API / PC / KR site data with similar data collected from the Lower Fox River and Lower Green Bay Estuary in Wisconsin. A full quantitative HHRA was conducted for these water bodies under the direction of the Wisconsin Department of Natural Resources (WDNR).

Assuming that similar exposure assumptions are appropriate for both the Michigan and Wisconsin sites, pathways found to be significant in the Lower Fox / Green Bay site were evaluated in the API / PC / KR assessment. Exceptions were made when detected concentrations were substantially lower at the API / PC / KR site.

1.2 Scope

This HHRA evaluates potential current and foreseeable future risks to people who may recreate on or live near the Kalamazoo River and its floodplain. The range of possible exposures to river water, sediment, biota, and floodplain soil were examined. For some types of exposure, a quantitative assessment of cancer risk and noncancer hazard was conducted. For other types of exposure, only a qualitative evaluation was conducted because previous investigations for a similar site found such exposures to not be associated with a significant risk, given similar or higher media concentrations.

PCB contamination is the primary focus of this HHRA and the only chemical of concern evaluated for the site. This HHRA focuses on the following two populations:

- People who may recreate on or near the Kalamazoo River and the floodplain
- People who may live near the Kalamazoo River and the floodplain

A separate HHRA has been conducted for the King Highway Landfill Operable Unit, a Georgia Pacific property along the Kalamazoo River (Blasland, Bouck & Lee [BB&L] 1996, 1997), and for the Willow Boulevard / A-Site (Camp Dresser & McKee Inc. [CDM] 2000).

1.3 Report Organization

This HHRA is being conducted under contract to the Michigan Department of Environment Quality (MDEQ) and follows guidance and directives issued by both the MDEQ and the U.S. Environmental Protection Agency (EPA).

The organization of this report follows the general format outlined in Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part A). The remainder of this report is organized as follows:

- Section 2 – Data Evaluation
- Section 3 – Exposure Assessment
- Section 4 – Toxicity Assessment
- Section 5 – Risk Characterization
- Section 6 – Determination of Risk – Based Sediment and Floodplain Soil Concentrations
- Section 7 – Uncertainty Assessment
- Section 8 – References